

My Experience in the Renal and Cardiovascular Lab

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Lab Background

The Renal and Cardiovascular Disease Research Laboratory examines the efficacy of non-pharmacological interventions on the health and quality of life of people with chronic kidney disease (CKD).

Objective:

The RCRL aims to determine if Chronic Kidney Disease patient's co-morbidities can be better controlled primarily via physical activity and nutrition interventions.

Research Projects:

- Dietary Sodium-Restriction and Renal Meals for Hemodialysis (DISaRM)
- Development and Testing of an Innovative Patient-Centered Physical Activity Program for Hemodialysis Patients
- Dietary Sodium Intervention to Reduce Tissue Sodium in Magnetic Resonance Imaging for Hemodialysis Patients (DSMRI)

Research Project 1

Dietary Sodium-Restriction and Renal Meals for Hemodialysis (DISaRM)

Objective:

To determine if short-term feeding of low-sodium meals can "prime" changes in long-term nutrition behavior.

Methods:

HD patients will be recruited and randomized to 2 groups: 1) Low-sodium meal feeding plus dietary counseling; or 2) a waitlist control group that will initially receive dietary counseling alone. IDWG will serve as the primary outcome with fluid volume overload, intradialytic hypotension, cramping, dietary sodium intake, sodium taste sensitivity and preference, and sodium self-efficacy evaluated at 1 and 6 months. The outcomes of this investigation will provide the first data on whether meal provision is an effective tool for dietary modeling and prolonged behavior change in HD patients.

My participation

I worked on this project in the first semester and my responsibilities consisted of:

- Using Box, go through the uploaded patient diet records
- Separate the data and organize it into ASA24 software to generate an analysis of the nutritional profile of the patient's diet in terms of what they reported.
- Sort the data from the nutritional profile into a Google Spreadsheet and upload it to the lab's Box.

Research Project 2

Development and Testing of an Innovative Patient-Centered Physical Activity Program for Hemodialysis Patients (Move More)

Background:

Individuals with kidney failure receiving maintenance hemodialysis (HD) have very low physical activity levels and poor physical function, and this contributes to a poor quality of life (QOL) and premature mortality. To help address this problem, many have implemented simplistic exercise programs that include mandated exercise prescriptions such as cycling during dialysis, light resistance training, or at home walking programs. But the benefits from these studies are often disappointing, as they are characterized by poor adherence, high dropout rates, and modest effects on physical function or other outcomes related to QOL.

Objective:

The primary objective of this study is to examine the feasibility and effectiveness of an individualized patient-centered exercise prescription in HD patients.

Methods:

A system was established in which participants will accumulate points by completing various activities of their choosing. This may include "lifestyle" activities (e.g., gardening, housework), endurance exercise, and/or strength training type activities. Points for each activity are derived from metabolic equivalent (MET) scores from the Compendium of Physical Activity. The goal of the point-based system is to apply a progressive physical activity (PA) program in which participants are increasing PA on a weekly basis. The rationale for this point system is that participants can choose activities that are important to them, as opposed to prescribed mandated exercises they may not value or benefit from. This may create more intrinsic motivation for patients, thus increasing adherence to their PA prescription. Similar methods have been implemented within healthy populations for dieting and PA interventions but is untested in hemodialysis patients.

My Participation

Upon completion of numerous exhaustive and rigorous trainings in preparation of this project, I started in February where I was assigned a patient whose activity and goals, I was to encourage and keep track of using REDCAP software.

After checking in to the clinic and meeting with a Graduate student, my duties include:



1. Record the physical activity that the patient logs for the days prior to my shift and update the corresponding file on REDCap, taking note of any exercises that they disliked or had trouble with.
2. Remind and encourage patients about their weekly physical activity goals.
3. Ask patient if they would like to participate in exercises during treatment and upon checking vitals and ensuring it is safe, proceed with exercises from the guide.
4. Safely run through each exercise and update exercise sets/reps/ duration on REDCap accordingly.



Research Project 3

Dietary Sodium Intervention to Reduce Tissue Sodium in Magnetic Resonance Imaging for Hemodialysis Patients (DSMRI)

Objective: The purpose of this pilot study was to utilize the ^{23}Na -MRI coil to quantify changes of sodium levels in the skin and skeletal muscle in hemodialysis treatments before and after a low-sodium diet intervention.

Methods:

HD patients will undergo a 30-day observation period (CON) followed by a low-sodium diet period (INT) for 30 additional days. Testing will occur at baseline and after each time-point (three time points total). During the CON period, patients will have no changes to their normal dialysis treatment, and will be asked to follow their normal diet. During the INT period, patients will be provided a low-sodium diet intervention that includes receiving 3 low sodium meals per day and snacks provided by momsmeals.com.

My Participation

I completed the necessary MRI training at the Beckman Institute in order to assist with this project whenever needed however this project is on a monthly basis not a weekly basis and my assistance hasn't been needed yet. Regardless, my responsibilities would be making the patient as comfortable as possible and assisting the Graduate student with whatever he or she may need help with.

ACKNOWLEDGEMENTS

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